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sEMG EVALUATION IN DENTISTRY

COMPARATIVE SEMG ANALYSIS OF MASTICATORY MUSCLES IN TEMPOROMANDIBULAR DISORDERS AND HEALTHY SUBJECTS

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Temporomandibular disorders (TMD) are a frequent source of non-dental orofacial pain, influenced by multifactorial biopsychosocial mechanisms. Surface electromyography (sEMG) of the masticatory muscles provides objective and minimally invasive metrics useful for characterizing neuromuscular alterations associated with TMD. The aim of this experimental study was to compare a group of patients with temporomandibular disorders (TMD) to a group of healthy controls using a standardized surface electromyography (sEMG) protocol, assessing measurements repeatability. Thirty participants (15 TMD patients and 15 healthy subjects) underwent two sEMG recordings separated by 7–14 days. Electromyographic activity of the masseter and anterior temporalis muscles was collected under both static (clenching) and dynamic (unilateral chewing) conditions. Intragroup findings indicate good intra-session and inter-session repeatability of the sEMG protocol in both healthy individuals and TMD patients. Inter-group analyses were performed to determine whether surface electromyography could discriminate healthy subjects from patients with temporomandibular disorders. The following indices showed statistically significant intergroup differences ($p < 0.05$) during the dynamic assessment: ellipse area, impact, number of chewing cycles, frequency and module index. Surface electromyography appears to be a potentially useful tool for monitoring muscle function over time both in healthy individuals and TMD patients; however, it did not demonstrate sufficient sensitivity to reliably differentiate healthy subjects from TMD patients. Further validation is required, including expanding the sample size, improving sample stratification and analyzing sEMG characteristics associated with different TMD subtypes.

Keywords: *temporomandibular disorders, surface electromyography, masticatory muscles.*